UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,851	12/22/2003	Jean-Marie Tran	871.0118.U1(US)	9087

29683 7590 03/21/2007	EXAMINER	
HARRINGTON & SMITH, PC	WILLIAMS, LAWRENCE B	
4 RESEARCH DRIVE		
SHELTON, CT 06484-6212	ART UNIT	PAPER NUMBER
	2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/743,851	TRAN, JEAN-MARIE
	Examiner	**Art Unit**	
	Lawrence B. Williams	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *16 March 2007*.
2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-35* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) *17-20 and 26-28* is/are allowed.
6) ☒ Claim(s) *1-16,21-23 and 29-36* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 1-3 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 appears to be a method/process claim. However, what is actually being sought is patent protection for a computer process/algorithm which is a judicial exception to 35 U.S.C. 101. The invention as claimed, processes a received signal to remove "an effect of at least one of a transmit filter or a receive filter on the multi-path profile". The body of the claim is merely functional descriptive language of an algorithm for processing the signal with no application for this processing. The claim invention is not directed to a practical application of such judicial exception, because the result "removing an effect of at least one of a transmit filter or a receive filter on the multi-path profile" does not require any physical transformation and the invention as disclosed does not produce a useful, concrete and practical result.

Claims 2-3 are rejected based upon their dependency upon rejected claim 1.

3.   Claims 4-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 4 appears to be a method/process claim. However, what is actually being sought is

patent protection for a computer algorithm/process which is a judicial exception to 35 U.S.C.

101. The invention as claimed, processes a received according to a least squares

criterion/algorithm as cited in the claim with no application for this processing. The body of the

claim is merely functional descriptive language of the algorithm for processing a received signal.

The claimed invention is not directed to a practical application to such judicial exception,

because the mere processing of the received signal does not require any physical transformation

and the invention as disclosed does not produce a useful, concrete and practical result.

Claims 5-9 are rejected based upon their dependency upon rejected claim 4.

4.   Claim 32 is rejected under 35 U.S.C. 101 because the claimed invention is directed to

non-statutory subject matter.

Claim 32 appears to be a method/process claim. However, what is actually sought is

patent protection for a computer algorithm/process which is a judicial exception to 35 U.S.C.

101. The invention as claimed, processes a signal for a "finger assignment algorithm" whose

result is "so as to reduce an occurrence of multipath side lobes in the output data". The body of

the claim is merely functional descriptive language of the processing. The claim is not directed to

a practical application to such judicial exception because, the result of the claimed invention, "so

as to reduce an occurrence of multipath side lobes in the output data" does not require any

physical transformation and the invention as disclosed does not produce a useful, concrete and

practical result.

5.   Claim 33 is rejected under 35 U.S.C. 101 because the claimed invention is directed to

non-statutory subject matter.

Claim 33 appears to be a method/process claim. However, what is actually sought is

patent protection for a computer algorithm which is a judicial exception to 35 U.S.C. 101. The

invention as claimed, processes a signal whose result is "so as to reduce an occurrence of

multipath side lobes in the output data". The body of the claim is merely functional descriptive

language of the processing. The claim is not directed to a practical application to such judicial

exception because the result of the claimed invention, "so as to reduce an occurrence of

multipath side lobes in the output data" does not require any physical transformation and the

invention as disclosed does not produce a useful, concrete and practical result.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

1.   Claims 1-2, 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's Admitted Prior Art in view of Eran et al. (US Patent 6,82,236 B1).

(1) With regard to claim 1, Applicant's Admitted Prior Art teaches a method to receive a

code division multiple access (CDMA) signal from a radio channel, comprising: inputting a

CDMA signal received through the radio channel to a searcher; and processing the received

signal in the searcher to obtain a multi-path profile of the radio channel (pg. 1, lines 11-18).

Applicant's Admitted Prior Art does not teach processing the signal, at least partially via

deconvolution and where processing comprises at least partially removing an effect of at least one of a transmit and a receive filter on the multi-path profile.

However, Eran et al. teaches processing a received signal by deconvolution (col. 2, lines 1-18) in a whitening filter to compensate for the coloration potentially added by the transmit pulse shaping filter, channel distortion including multipath propagation and fading, receive filter and any pre-channel estimation filter (col. 2, line 65-col. 3, line 4).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Eran et al. as a technique for determining the matched filter response and a white filter response of a white matched filter that has low computational complexity and involves a constant number of computations (col. 2, lines 49-52).

(2) With regard to claim, Applicant's Admitted Prior Art also teaches a method as in claim 1, further comprising outputting the multi-path profile to a controller for use in making demodulator finger assignments (pg. 1, lines 16-18).

(3) With regard to claim 8, Eran et al. discloses the invention constructed in discrete hardware components (col. 4, lines 46-54). Thus one skilled in the art would have been motivated to incorporate the hardware into the searcher of Applicant's Admitted Prior Art for determining the matched filter response and a white filter response of a white matched filter that has low computational complexity and involves a constant number of computations (col. 2, lines 49-52).

(9) Though the least partially removing performed by a processor that is external to a searcher is not disclosed, such a method would be a design choice since the effect would be the same, i.e., the removing of effects of the transmit/receive filter.

2.   Claims 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's

Admitted Prior Art in view of Eran et al. (US Patent 6,82,236 B1).

(1) With regard to claim 10, Applicant's Admitted Prior Art teaches in Fig. 2, an

apparatus to receive a code division multiple access (CDMA) signal from a radio channel,

comprising: a receiver front end (106) for receiving a CDMA signal from the radio channel; said

receiver front end comprising at least one receiver filter (106A-B) and outputting a digital

representation of a radio channel multi-path profile to a control function (pg. 1, lines 16-18).

However, Applicant's Admitted Prior Art does not teach a deconvolution searcher block

having an input coupled to an output of the receiver front end for inputting a received signal and

an output for outputting a digital representation of a radio channel multi-path profile to a control

function, said deconvolution searcher block comprising a unit for processing the received signal

to at least partially remove an effect of at least said receiver filter on the multi-path profile.

However, Eran et al. teaches in Fig. 1, a deconvolution block (32) having an input

coupled to an output of a receiver front end (28) for inputting a received signal and an output for

outputting, said deconvolution block comprising a unit for processing the received signal to at

least partially remove an effect of at least said receiver filter (col. 2, line 65-col. 3, line 4).

It would have been obvious to one skilled in the art at the time of invention to incorporate

the teachings of Eran et al. as a technique for determining the matched filter response and a white

filter response of a white matched filter that has low computational complexity and involves a

constant number of computations (col. 2, lines 49-52).

(2) With regard to claim 11, Eran et al. also discloses where said unit for processing the received signal also at least partially removes an effect of a transmitter filter on the multi-path profile (col. 2, line 65-col. 3, line 4).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Eran et al. as a technique for determining the matched filter response and a white filter response of a white matched filter that has low computational complexity and involves a constant number of computations (col. 2, lines 49-52).

(3) With regard to claim 12, Applicant's admitted prior art also discloses where said receiver is located at a mobile station (pg. 1, line 16), and where said transmitter is located at a base station (pg. 2, line 3).

(4) With regard to claim 13, though Applicant's Admitted Prior Art discloses the transmitter and receiver in opposite locations, one skilled in the art would inherently apply the prior art to both base and mobile since both comprises transceivers and thus realize the same problem.

(5) With regard to claim 14, Applicant's Admitted Prior Art also teaches where said control function uses the multi-path profile when making demodulator finger assignments (pg. 1, lines 16-18).

(6) With regard to claim 21, claim 21 discloses limitations similar to those disclosed in claim 10. Therefore a similar rejection applies.

(7) With regard to claim 22, claim 22 discloses limitations similar to those disclosed in claim 11. Therefore a similar rejection applies.

(8) With regard to claim 23, claim 23 discloses limitations similar to those disclosed in claim 14. Therefore a similar rejection applies.

(9) With regard to claim 30, Eran et al. discloses the invention constructed in discrete hardware components (col. 4, lines 46-54). Thus one skilled in the art would have been motivated to incorporate the hardware into the searcher of Applicant's Admitted Prior Art for determining the matched filter response and a white filter response of a white matched filter that has low computational complexity and involves a constant number of computations (col. 2, lines 49-52).

(10) With regard to claim 31, Erin et al. also discloses where said unit is implemented in control function software (col. 4, lines 46-53).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Eran et al. as a technique for determining the matched filter response and a white filter response of a white matched filter that has low computational complexity and involves a constant number of computations (col. 2, lines 49-52).

(11) With regard to claim 34, claim 32 discloses limitations similar to those disclosed in claim 21. Therefore a similar rejection applies.

(12) With regard to claim 35, claim 35 discloses limitations similar to those disclosed in claim 11. Therefore a similar rejection applies.

(13) With regard to claim 36, Eran et al. discloses circuitry for removing effects of a transmit/receive filter (col. 2, line 62-col. 3, line 4) being implemented in an integrated circuit (col. 4, lines 46-53).

3.   Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's

Admitted Prior Art in view of Erikmats (US Patent 4,095,225).

Applicant's Admitted Prior art discloses in a mobile station, a method to reduce an

amount of data provided to a finger assignment algorithm, comprising: inputting a CDMA signal

received through a radio channel to a searcher; and processing the received signal in the searcher

to generate output data for the finger assignment algorithm that represents a multi-path profile of

the radio channel, where processing comprises passing the received CDMA signal through a

filter (pg(s) 1-2, background of the invention).

Applicant's Admitted Prior art is silent as to the subject of a filter selected to have a filter

characteristic that approximates an inverted response of at least one of a base station transmit

filter or at least one mobile station receive filter to reduce an occurrence of multi-path side lobes

in the output data (col. 2, lines 1-9).

However, Erikmats filtering of coded and reflective data by means of an inversed filter

relative to the filtering of the transmitting side to eliminate side lobes.

It would have been obvious to one skilled in the art at the time of invention to incorporate

the teachings of Erikmats into least one of a base station transmit filter or into at least one mobile

station receive filter to reduce an occurrence of multi-path side lobes as a method of eliminating

side-lobes in the output data.

Allowable Subject Matter

4.   Claims 17-20, 26-29, 33 are allowed.

Conclusion

5.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this
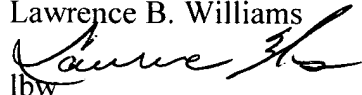
final action.

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037.

The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for

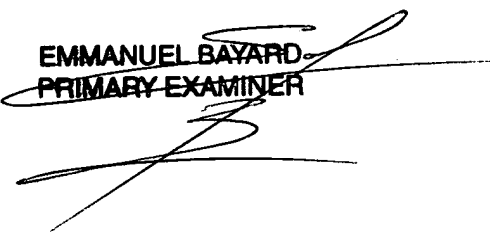the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
March 17, 2007

EMMANUEL BAYARD
PRIMARY EXAMINER